Launch Vehicle Data Center (LVDC)

NASA Facts

At the dedication of the upgraded Launch Vehicle Data Center in Hangar AE, Cape Canaveral Air Force Station, Fla., attendees got a close look at the new consoles. Seated on the right is Steve Francois, program manager, Expendable Vehicles and Payload Carriers.

Kennedy Space Center's new world-class Launch Vehicle Data Center (LVDC) was successfully christened with the April 7, 2001, launch of a Delta II rocket boosting the 2001 Mars Odyssey spacecraft toward the Red Planet. About 100 managers and engineers from KSC, the Jet Propulsion Laboratory and other sites monitored the launch in Hangar AE on Cape Canaveral Air Force Station (CCAFS).

The new LVDC has three control rooms to support multiple and larger operations. The three rooms have replaced the single LVDC control room used since the mid-1970s.

"It was a challenge to configure our old setup and space was tight," said AE Operations Director Stephen Cox of the old 950-square-foot room. The three rooms total 2,511 square feet.

The LVDC was developed by NASA KSC to support multiple test operations in parallel or a single large launch operation. The LVDC works in tandem with the adjacent Mission Director Center, the control room where NASA launch managers monitor expendable vehicle launches, and where the final decision to launch is made.

Unlike the Space Shuttle Launch Control Center, the Hangar AE facility does not provide launch command. That function is provided from various block houses or command centers, depending on the launch pad used. However, all telemetry data from the vehicle during flight is received, recorded and displayed at Hangar AE.

The LVDC engineering monitor displays are state of the art and the voice communications capabilities have been upgraded. It took nearly six years to develop the new monitoring systems, which were instituted in several phases.

The Hangar AE control rooms provide real-time voice, data and video information for expendable vehicle checkout and launch operations, similar to that provided by the space shuttle control rooms. Each console in the LVDC has a 40-channel voice instrument called a MOCS2 (Mission Operation Communication System version 2). Other areas have 24-channel versions of the MOCS2. Each console has access to an administrative telephone and a modem line for use with a laptop computer, if required.

An Enhanced Telemetry Display System monitors all launch vehicle and spacecraft data and can be moved into other areas, if required.

The video system takes up to 150 inputs from all areas of CCAFS and KSC. Each console can select from these inputs. Each LVDC has two high quality video cameras with electronic pan, tilt and zoom features, and two 84-inch projector monitors and four 40-inch flat plasma monitors.

Finally, each LVDC has two timing displays with Greenwich Mean Time (GMT), L-time and T-time.

The Hangar AE control rooms give managers and engineers the ability to detect or investigate any problems – with weather, the vehicle, the payload or the pad – that may develop during operations.

If needed, the new facility can be linked with NASA's control rooms at Vandenberg Air Force Base in California that are used to launch polar-orbiting spacecraft. It can also be linked to other remote launch sites.

The LVDC offers world-class service to the expendable vehicle launch management team. With modern systems, the LVDC will ensure the reliability and safety of the NASA launch fleet for many years to come.

KSC has served as NASA's lead center for the acquisition and management of Expendable Vehicle Launch Services since the beginning of fiscal year 1999.

FACTS
The LVDC contains:
- 3 control rooms, each seating 24-30 (capacity of all, 72-90)
- 1 spacecraft ground support equipment (GSE) area, seating 8-10
- Executive suite, seating 8-10
- Winds room (provides upper level atmospheric winds assessment), seating 4-6
- Public affairs room, seating 2

The support rooms can be tied to NASA's West Coast control rooms at Vandenberg Air Force Base for bi-coastal support.

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The Kennedy Space Center Story -- http://www-pao.ksc.nasa.gov/kscpao/kscstory/ksctoc/kscstory.htm

Publishers Photo Corner -- http://www-pao.ksc.nasa.gov/kscpao/captions/hotpics.htm

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